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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/589,789 | 02/01/2007 | Hugh Charles Seton | ASTB 0055 | 2287 |

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| EXAMINER |
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PETTITT, JOHN F

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| ART UNIT | PAPER NUMBER |
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3744

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| MAIL DATE | DELIVERY MODE |
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04/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/589,789 | Applicant(s) SETON ET AL. | |
| | Examiner John F. Pettitt | Art Unit 3744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/14/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The present application does not include any section headings and therefore should be amended.

Abstract

The abstract of the disclosure is objected to because the abstract includes legal phraseology. Applicant is reminded of the proper language and format for an abstract of the disclosure.

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The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 1-14 are objected to because of the following informalities: There are several numbers throughout the claims that appear to be reference numbers from the applicant's specification. For example, the recitation, "5 a multilayer insulation" (line 3, claim 1) as well as in claim 6 line 2, "wherein the radiation 30 shield" these are considered erroneously included and should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-6, 8, 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Seton et al. (WO 98/06972) published 19 Feb 1998. Seton teaches a liquefied gas

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cryostat (fig. 2) that houses a Superconducting Quantum Interference Device for MRI (p. 3) which comprises: inner (3) and outer (2) walls defining an evacuated housing (page 3, line 35); multilayer insulation (MLI - page 4, line 2) positioned between the inner (3) and outer (2) walls; and at least one radiation shield (6) circumscribing the inner wall (3) between the inner (3) and outer (2) walls so as to extend over an area of the inner wall (3) which is contacted and cooled by liquefied gas (helium, page 8, line 2) in the cryostat when in use. Seton further teaches that the radiation shield (6) comprised a plurality of rods which are thermally conducting and electrically insulating when the cryostat contains liquefied gas (page 6, lines 25-30, being formed from electrically insulated strips or wires of aluminum or copper, lengthwise). Further, Seton teaches that the radiation shield desirably is 2mm thick; that the shield comprises a glass reinforced plastic substrate on which the rods are positioned (page 6, line 30); that the shield comprises an end plate having a thickness of 2 mm (page 9, lines 28-29); that the shield (6) is cooled by being in contact with a venting tube (8) of the cryostat via a heat exchanger (copper or Al strips; p. 7, line 35) for transferring heat from the shield (6) to the tube (8), as liquefied gas boils off.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the obvious modification of Seton or in the alternative over Seton in view of Saho (US 2002/0024338) or Seifert (US 5065582).

Seton anticipates the limitations of claims 1, 4-6, 8, 9-14 as described above. Alternatively, the claimed invention is seen to be an obvious modification of the teachings of Seton using an alternate analysis. That is, Seton teaches a liquefied gas cryostat (fig. 2) which comprises: inner (3) and outer (2) walls defining an evacuated housing (page 3, line 35); multilayer insulation (MLI - page 4, line 2) positioned between the inner (3) and outer (2) walls; and at least one radiation shield (6) circumscribing the inner wall (3) between the inner (3) and outer (2) walls so as to extend over an area of the inner wall (3) which is contacted and cooled by liquefied gas (helium, page 8, line 2) in the cryostat when in use; providing a radiation shield formed from sintered ceramic material, or sapphire or diamond powder composite, alumina, aluminum nitride, or silicon carbide (page. 7, lines 24-30).

Seton further teaches that the state of the art, at the time of the reference (1998), was to provide the shield in the form of electrically insulated strips or wires of copper or

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aluminum on a g.r.p tube to reduce eddy current losses (p. 6, lines 25-30). Therefore, this is seen as an explicit suggestion that providing shield material in the form of a plurality of rods reduces the eddy current losses in a radiation shield, and so it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the improved radiation shield material as was known in the art - in the form of strips or wires on a g.r.p tube for the purpose of decreasing eddy current losses further.

In addition or in the alternative, it is noted that Saho teaches that radiation shields for SQUID cryostats are advantageously formed from a plurality of rods (see figures 5-6, 8-10) on an electrically insulating substrate (parag. 29, 30, 31, 35) for reducing eddy currents.

In addition or in the alternative, Seifert teaches that SQUID cryostats are advantageously formed from a plurality of rods (see figures 2-3, column 4, lines 45-67; column 5, lines 10-55). Therefore, in view of Saho and/or Seifert, it is shown that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the improved radiation shield material in the form of strips or wires on a g.r.p tube as taught by Saho and/or Seifert for the purpose of decreasing eddy current losses.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
April 9, 2010